

Work Order ID 115862

April-04-14 10:23:31 AM

115862

Page 1

Item ID: D2580-1

Revision ID:

Item Name: 205 Bent Tube

Start Date: 4/21/14

Start Qty: 6.00

6

Required Date: 4/21/14

Req'd Qty: 6.00

6

Reference:

Accept

N900040100

Setup Start

NS1

Stop

NS2

Cust Item ID:

Customer:

Approvals:

Process Plan:

[Signature]

Date: 4.04.07

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

NR1

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2580

F

0.00

0.00

100

100

Skid tubes

Skid tubes

Memo

1- Inspect mat'l D2500-1-190 for damage.

2-Drill pilot holes using drill jig DT 8149 A-BC-D

3-Open holes to 0.508" as per Dwg D2580

4-Deburr holes per QSI002 section 4.2.3 and blow out all chips from inside of tube

5- Test fit inspection saddles on FWD & AFT saddle holes using DT9916.

101

QC6- Inspect dimensions to drawing

0.00

101

QC

Quality Control

Memo

0.00

[Handwritten notes and signatures]
DGL/SLL 14-4-9
DD 14-4-9

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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Page 2

Item ID: D2580-1

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Item Name: 205 Bent Tube

Start Date: 4/21/14 Start Qty: 6.00

Required Date: 4/21/14 Req'd Qty: 6.00

Reference:

Accept

N900040100Setup Start ***NS1***Stop ***NS2***

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____

QC: _____ Date: _____

Tooling: _____ Date: _____

SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110

Chemical Conversion Coat per QSI005 4.1

0.00

110

HandFinish

Memo

0.00

Hand Finishing

14-4-9 JLL/DGL

120

QC7-Inspect Chemical Conversion Coat

0.00

120

QC

Memo

0.00

Quality Control

D 14-4-9

125

0.00

125

Skidtubes

Memo

0.00

Skidtubes

1- Bond web in place per QSI 015.

A/R Sikaflex-291 batch: 178026

Sikaflex expire date: 14-10-09

Start time and date: 8:00am bond for 12hrs

C 14-4-10
DGL JLL

DQA: _____ Date: _____



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Supplier									
Training									
Transport									
Unapproved									

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Page 3

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Start Date: 4/21/14

Start Qty: 6.00

6

Required Date: 4/21/14

Req'd Qty: 6.00

6

Reference:

Accept

N900040100

Setup Start

NS1

Stop

NS2

Cust Item ID:

Customer:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

Stop

NR2

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.00

Quality Control

DAS
03
9-89

DP 14-4-11

140

Identify as per dwg & Stock Location: 46

0.00

140

Packaging

Memo

0.00

Packaging

DP 14-4-11

150

QC21- Final Inspection - Work Order Release

0.00

150

QC

Memo

0.00

Quality Control

14-04-14

H 14-04-11

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>
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Design									
Doc/Data									
Equip/Tooling									
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FAULT CATEGORY

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Picklist Print

April-04-14 10:23:31 AM

Page 1

Work Order ID: 115862

115862

Parent Item: D2580-1

D2580-1

Parent Item Name: 205 Bent Tube

Start Date: 4/21/14

Required Date: 4/21/14

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP B01.11.08 Revised Step 9, 10, 12, and 13 SM
10.12.01 as per DEO D1 DD verf:ec

IPP Rev:C

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2500-1-190		Manufactured	No			100	Each	49.0000	1	6			
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D2500-1-190

Ext'n -I' Beam Tube 4"

Location

Loc Qty

Loc Code

HALL

49

105279

49

D2596

Manufactured No

100

Each

4.0000

1

6

D2596

Web, 205 Skidtube

Location

Loc Qty

Loc Code

LG002

4

100908

4

115023

14-4-9.

⑥ JLL/DC

④ JLL/DC 14-4-10
② JLL/DC 14-4-10

DQA: _____ Date: _____



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Doc/Data									
Equip/Tooling									
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Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

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LIST OF MATERIALS					
ITEM	QTY -041	QTY -045	QTY -047	PART NUMBER	DESCRIPTION
1	X			D2580-041	SKIDTUBE ASSEMBLY
2		X		D2580-045	SKIDTUBE ASSEMBLY
3			X	D2580-047	SKIDTUBE ASSEMBLY
4	1	1	1	D2500-1-190	EXTRUSION
5			16	D2570	BUSHING
6	1	1	1	D2576-3	STEP
7		4		D2579	SPACER
8	16	16	8	D2594-1	PLUG
9	16	16	8	D2594-3	O-RING
10	1	1	1	D2596	205 WEB
11	1	1	1	D2855	AFT CAP
12	1	1		D3564-5	WEARSHOE
13	1	1		D3564-9	WEARSHOE
14	1	1		D3564-11	WEARSHOE
15	1	1		D3564-13	WEARSHOE
16	2	2		D3566-1	GASKET
17	1	1		D3566-5	GASKET
18	1	1		D3566-13	GASKET
19	20	20	24	D4202-1	SPACER
20			1	D4406-041	WEARPLATE ASSEMBLY
21			1	D4406-043	WEARPLATE ASSEMBLY
22	50	50		ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
23	50	50		AN3C4A	BOLT
24	2	2	2	AN3-5A	BOLT
25			8	AN4-45A	BOLT
26	50	50		NAS1149C0332R	WASHER (AN960C10L)
27	2	2	2	NAS1149D0332J	WASHER (AN960JD10L)
28			8	MS21042-4	NUT (OR MS21042L4)

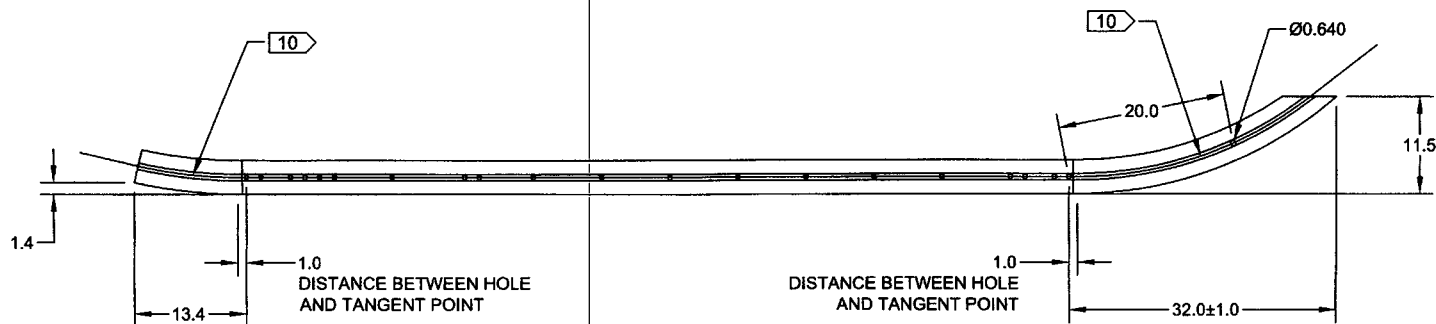
GENERAL NOTES:

- MATERIAL: N/A
- FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY (-041/-047) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
POWDER COAT ASSEMBLY (-045) GREEN SANDEX (REF 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: NONE
- WEIGHT: D2580-041 = 34.5 lbs
D2580-045 = 34.5 lbs
D2580-047 = 37.7 lbs
- WELDING PER DART QSI 004.
- INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/281.
- INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047)
- IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

RELEASED
2013-07-13

F	INCORPORATE DEO D2580-E-1 PER PAR12-218	DC	13.06.20
E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	#	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DC		
CHECKED	RF	DRAWING NO.	REV. F
MFG. APPR.	DD	D2580	SHEET 1 OF 8
APPROVED	HS	TITLE	SCALE
DE APPR.	#	205 SKIDTUBE ASSEMBLY	NTS
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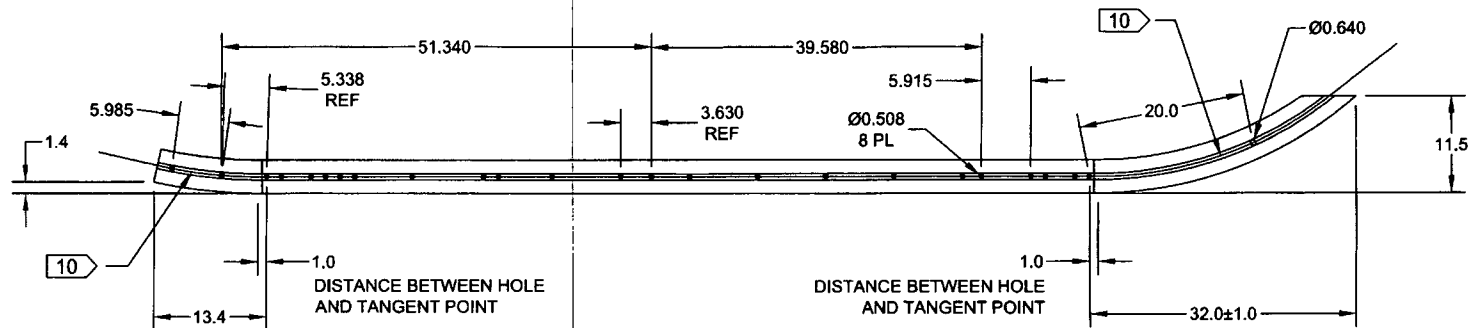
115862 NP
14-0407



D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2013-07-15

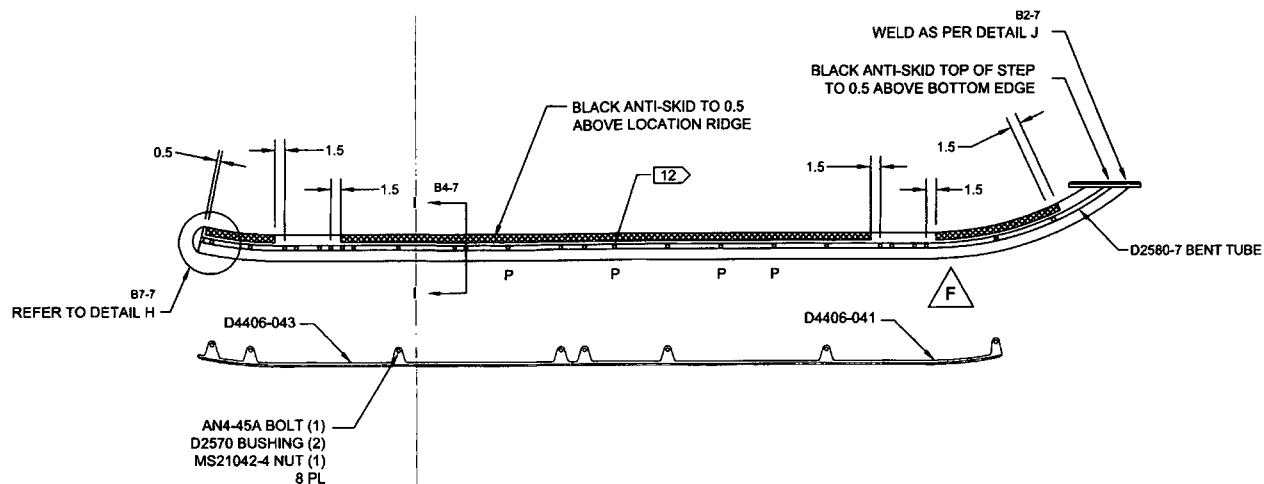
DESIGN	DC	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. F
CHECKED	DD	D2580	SHEET 3 OF 8
MFG. APPR.	HS	TITLE	SCALE
APPROVED	NTS	205 SKIDTUBE ASSEMBLY	
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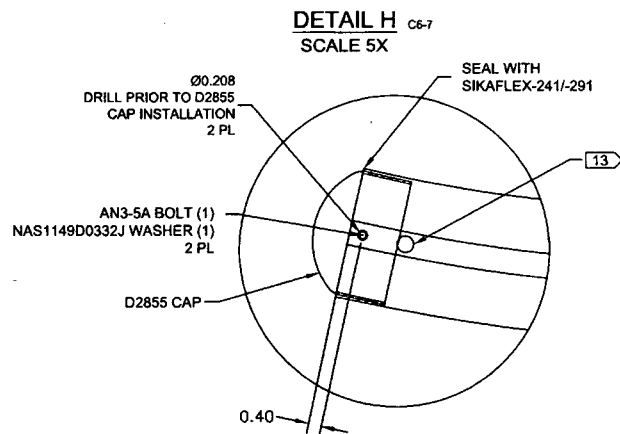
D2580-5 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2013-07-15
ND

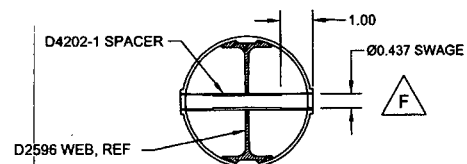
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DRAWN	DC	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. F
MFG. APPR.	DD	D2580	SHEET 5 OF 8
APPROVED	HS	TITLE	SCALE
DE APPR.	HS	205 SKIDTUBE ASSEMBLY	NTS
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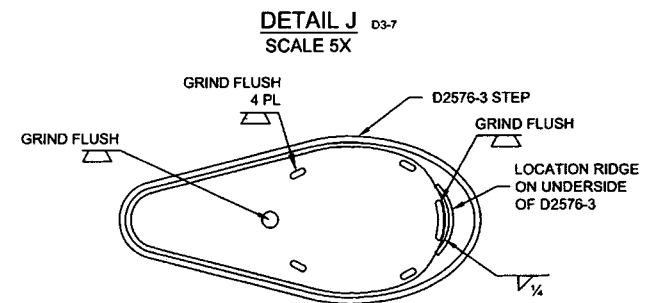
D2580-047 ASSEMBLY DETAIL



SECTION I-I D5-7 SCALE 5X

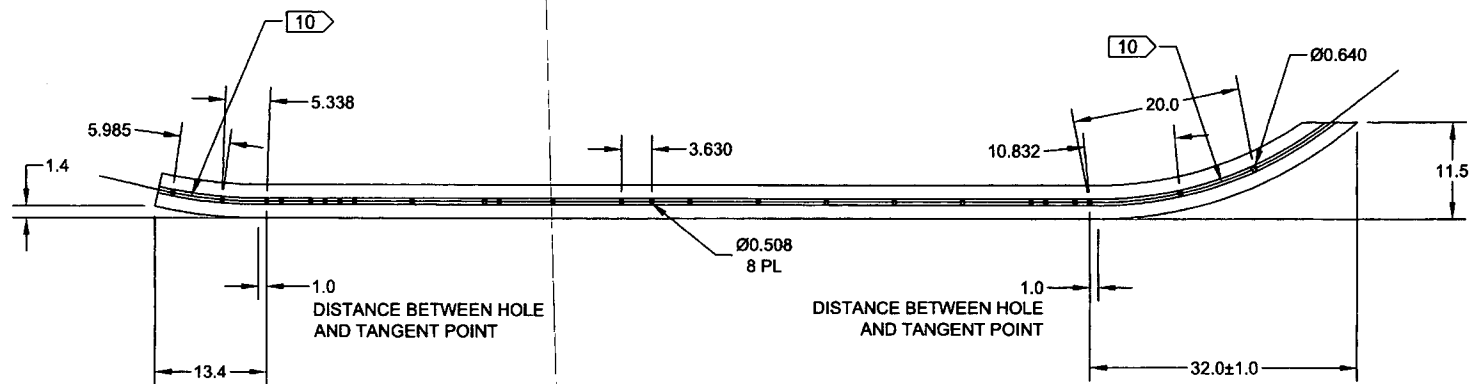


AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (24 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM/GRIND FLUSH PER QSI 002



DESIGN	4	DART AEROSPACE LTD	
DRAWN	DC	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. F
MFG. APPR.	DD	D2580	SHEET 6 OF 8
APPROVED	HS	TITLE	SCALE
DE APPR.	4	205 SKIDTUBE ASSEMBLY	NTS
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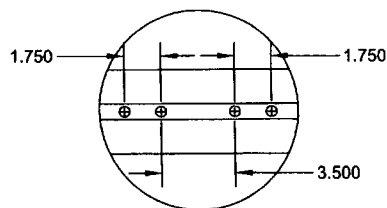
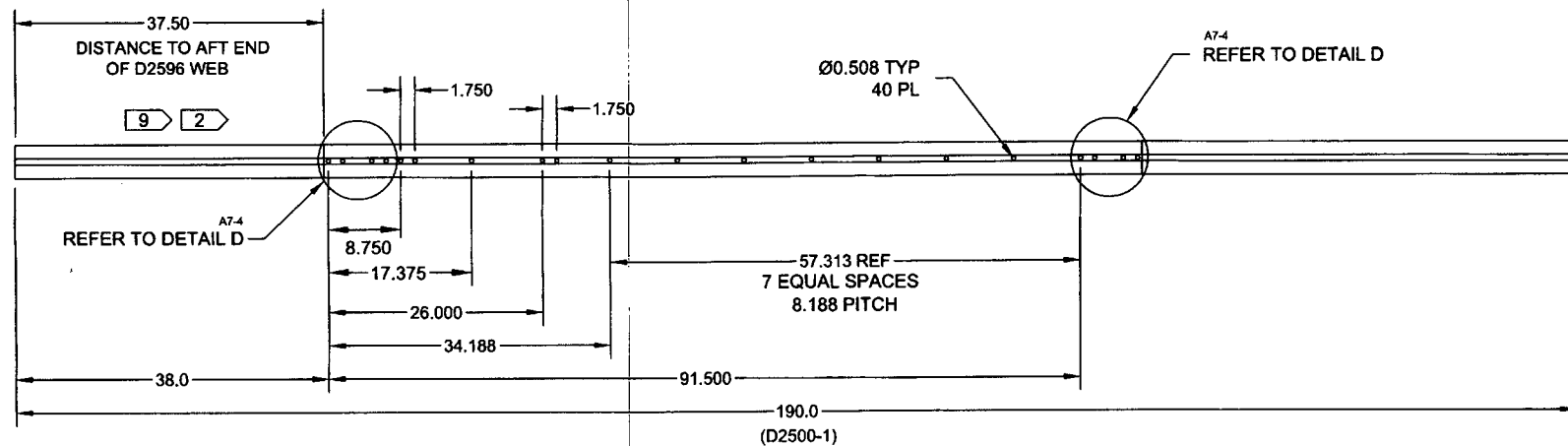
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2013-07-15



D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2013-07-15

DESIGN	DC	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	DD	DRAWING NO. D2580	REV. F SHEET 7 OF 8
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DETAIL D
SCALE 5X

D2580-101 TUBE

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2013-07-15

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DRAWN	RF	DRAWING NO.	REV. F
CHECKED	DD	D2580	SHEET 8 OF 8
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